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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

GRUN, ROBERT J

ART UNIT	PAPER NUMBER
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1791

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,157	Applicant(s) GUGGENBICHLER ET AL.	
	Examiner ROBERT J. GRUN	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

2. Claims 1, 6-14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacobson et al. (US Patent No. 5,503,840).

- Regarding Claim 1: Jacobson teaches: a) forming an intermediate product consisting of an antimicrobial powder and a plastic, b) treating at least a constituent (barium sulfate) of the intermediate product with an antimicrobial colloidal metal by precipitating silver onto the barium sulfate, and c) adding a readily soluble salt of an antimicrobial metal in this case Copper Nitrate (col. 10 lines 54-56). Jacobson also teaches forming polymer articles by including the antimicrobial composition in the polymer matrix (col. 6 lines 33-48).
- Regarding Claim 6 and 7: Jacobson teaches using his antimicrobial formulation in the production of organic polymers, among which is polyurethane (col. 6 line 42).
- Regarding Claim 8-12: Jacobson teaches adding additional additives to the intermediate. Such additives consist of Alumina or boehmite (col. 5 line 47), silica (col. 6 line 8), dioctyl azelate (organic additive) (col. 5 line 53), as well as barium sulfate, titanium dioxide, or zinc oxide (col. 5 lines 31-32).

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- Regarding Claims 13 and 14: Jacobson teaches the treating the constituent of the intermediate product consisting of barium sulfate (an inorganic particle) with colloidal Ag metal by reduction of Ag⁺ to Ag metal in solution (col. 5 lines 32-38 and col. 10 lines 49-51).
- Regarding Claim 16: Jacobson teaches the making of a plastic product in the instant case Nylon fibers (col. 12 line 41) but also teaches the product may be polyurethane (col. 6 line 42).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-5, 15, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson et al. (US Patent No. 5,503,840), as applied to claim 1 (for claims 2-5 and 18) and claim 16 (for claim 17) above, in view of Terry (US Patent 6,716,895).

- Regarding Claims 2 and 18: Jacobson teaches: a) forming an intermediate product, b) treating a constituent of the intermediate product with an antimicrobial colloidal metal, and c) adding a **readily** soluble salt (copper nitrate) of an antimicrobial metal (col. 10 line 31 through col. 11 line 14). Jacobson fails to teach the addition of a sparingly soluble metal salt of an antimicrobial metal.

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Terry teaches the use of various oligodynamic metal salts to create a colloid (col. 4 lines 62-66). Terry varies the release kinetics of the oligodynamic metal ions including those of Ag, Cu, Au, Pt, Zn by using salts of sparing solubility such as silver sulfate and silver phosphate (col. 7 lines 14-17 and lines 23-31). A person having ordinary skill in the art at the time of invention would have found it obvious to combine the teachings of Jacobson and Terry to create an article that had both surface antibacterial properties (Jacobson), due to the metal colloid, and a radius of antibacterial properties (Terry col. 8 line 23), due to the release of ions from the metal salt colloid.

- Regarding Claim 3: Jacobson teaches the invention as described in the rejection of claims 2 and 18, but fails to describe the use of silver sulfate or silver phosphate. Terry however does teach the use of oligodynamic metal salts including but not limited to silver sulfate and silver phosphate (col. 7 lines 23-31). For reasons stated above a person having ordinary skill in the art at the time of invention would have found the use of silver sulfate and silver phosphate to be obvious.
- Regarding Claims 4 and 5: Jacobson and Terry teach the invention as described above in the rejection of claim 3. Terry does not specify the percent of oligodynamic metal salt by weight in the final product, however one of ordinary skill in the art at the time of invention would find it obvious that a coating would make a small percentage of the overall weight of the plastic article. The colloid in Terry is 15% by weight Ag. Jacobson teaches a weight of Ag in the intermediate

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of from 0.2% or 1.0% and a weight of copper 0.4% in CuO which corresponds to 0.31% Cu which is derived from the CuNO_3 salt added to the intermediate.

Therefore Jacobson suggests a Ag:Cu ratio of approximately 2:1 (col. 10 lines 33-35).

- Regarding Claim 15: Jacobson and Terry teach the invention as described in the rejection of Claims 1-2 and 18. For reasons stated above a person having ordinary skill in the art at the time of invention would have found the use of the sparingly soluble salts of silver sulfate and silver phosphate to be obvious. Jacobson further teaches the extruding of the antimicrobial plastic (col. 11 lines 49-51).
- Regarding Claim 17: Jacobson teaches the invention as described above in the rejection of Claim 18. Jacobson however fails to teach the forming of the treated plastic precursors into catheters. Terry, however, teaches the use of oligodynamic metal salts to treat plastics articles such as catheters (abstract). Terry teaches creating varying the effective antimicrobial capability of the plastics based on the respective solubility's of the oligodynamic metal salts (abstract). A person having ordinary skill in the art (antimicrobial plastics) at the time of invention would have found it obvious to combine the teachings of Terry in order to form the plastics created in Jacobson, with both short term and long term antimicrobial properties.

Allowable Subject Matter

5. Claims 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- The following is a statement of reasons for the indication of allowable subject matter: Claims 19 and 20 require zirconium silicate. The prior art of record fails to teach using zirconium silicate as the carrier material for the colloid of the invention.

Response to Arguments

6. Applicant's arguments filed December 10, 2008 have been fully considered but they are not persuasive for the following reasons:

- Applicant's first major argument states that Jacobsen is not treating with a colloid. This argument however is unpersuasive. While Jacobsen never calls the coating a colloid, the "coating" is created by reduction of a metal salt solution of silver nitrate with sodium nitrate (col. 10 lines 44-51). Applicant describes the metal colloid to be prepared by reduction of metal salt solutions [0020], which is exactly how the silver coating is prepared in Jacobsen. Even if the coating comprises "a substantially total surface coverage", as Applicant describes, the coating is colloidal.
- Applicant's second major argument is that Jacobsen never adds a readily (or sparingly) soluble salt to the intermediate product. This argument is unpersuasive for two reasons: 1) Jacobsen does add Copper Nitrate (readily soluble antimicrobial metal salt) to the intermediate product barium sulfate (col. 10 lines 53-54), and 2) the limitation intermediate product was not part of the claim until the current amendment.

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In reading the claims with the broadest reasonable interpretation, the intermediate product claimed by applicant is barium sulfate coated with metal colloid which itself is a constituent of the antimicrobial plastic intermediate. Therefore Jacobsen does add a readily soluble salt to said intermediate, whether or not it is present in the final product.

- Additionally, while it is admitted that the quoted passage was inadvertently mis-cited, careful examination of the cited passage (col. 5 line 32-col. 6 line 43) would have delineated a rough procedure for coating of the barium sulfate by precipitation of antimicrobial components and further consideration of the examples would have further clarified that CuNO_3 (copper nitrate) was indeed added to an intermediate in the procedure of Jacobson (col. 10 lines 53-54).
- Applicant's final argument is that neither Jacobsen nor Terry teach the treatment of the intermediate with a colloidal metal. This argument is unpersuasive because, as described above, Jacobsen does teach treatment of an intermediate with a colloidal metal. Additionally, as described above, Terry teaches addition of antimicrobial metal salts and a person having ordinary skill in the art at the time of invention would have found it obvious to combine the teachings of Jacobson and Terry to create an article that had both surface antibacterial properties (Jacobson), due to the metal colloid, and a radius of antibacterial properties (Terry col. 8 line 23), due to the release of ions from the metal salt colloid.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT J. GRUN whose telephone number is (571)270-5521. The examiner can normally be reached on Mon-Thur 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on (571)272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERT J GRUN/
Examiner, Art Unit 1791

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791